

## ABSTRACT

An energy storage system is described for use in, for example, electronics systems such as a bank of computers. The disclosed energy storage systems allows the use of an efficient energy source, such as ultracapacitors, while providing a desired voltage level for an extended period of time. One embodiment of the energy storage system provides power to a load. The system includes a power module including at least one ultracapacitor adapted to store and discharge energy. The power module provides an output voltage as the ultracapacitor discharges energy. The system also includes a voltage regulator for boosting the output voltage of the power module. The voltage regulator may include a voltage converter. The voltage converter may be adapted to boost the output voltage when the output voltage falls below a predetermined threshold. The voltage converter may include a plurality of interleaving inductor circuits, each of the circuits including a switch and an inductor. The switches are adapted to be alternately closed and opened, thereby alternately storing energy in the inductors and discharging energy to the load.